



Name _____ Date _____

Practice: For use after Lesson 13.10, Algebra 2 with Trig

Algebra 2
Unit 4: WS #18**Binomial Theorem**

Use the Binomial theorem to expand each binomial.

1. $(3a - b)^3$ _____
2. $(r + s)^4$ _____
3. $(a + 3b)^5$ _____
4. $(c - 1)^6$ _____
5. $(1 - d)^7$ _____
6. $(r^2 - s)^4$ _____

Find the specified term of each binomial expansion.

7. second term of $(a + 2)^7$ _____
8. fourth term of $(d - 3)^{10}$ _____
9. tenth term of $(r + s)^{13}$ _____
10. third term of $(d - 2)^9$ _____

Find the first three terms of each binomial expansion.

11. $(a + b)^{15}$ _____
12. $(c - d)^{17}$ _____
13. $(c^2 - d^2)^9$ _____
14. $(ab + 2)^{14}$ _____

Find the specified term of each binomial expansion.

15. fourth term of $(a^2 - b^2)^{10}$ _____
16. eighth term of $\left(\frac{c}{4} + d^2\right)^{11}$ _____
17. fifth term of $\left(r + \frac{1}{3}\right)^8$ _____
18. eleventh term of $\left(\frac{a}{2} - b\right)^{13}$ _____

Applications

19. **Business** The projections of advertising dollars to be spent over the next 5 yr is given by the five terms of the expansion $(x + 2)^4$, where x is the number of types of media used. Find the amount spent in the second year if 3 types of media are used. _____

MIXED PRACTICE

Find the specified term of each sequence.

20. 5, 8, 11, 14, ...; a_{11} _____
21. 2, 6, 18, 54, ...; a_9 _____

Find the specified sum for each sequence.

22. $1 + 6 + 11 + 16 + \dots$; S_{10} _____
23. $27 + 9 + 3 + \dots$; S_7 _____
24. Find the seventh term of $\left(c - \frac{d}{2}\right)^9$ _____